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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/816,559

03/30/2004

Yew Wee Cheong

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31817

7590

05/25/2006

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EXAMINER

SHAKERI, HADI

ART UNIT

PAPER NUMBER

3723

DATE MAILED: 05/25/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/816,559

Applicant(s)

CHEONG, YEW WEE

Examiner

Hadi Shakeri

Art Unit

3723

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-25 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-25 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 30 March 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. ____. |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date ____. | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Specification

1. The abstract of the disclosure does not commence on a separate sheet in accordance with 37 CFR 1.52(b)(4). A new abstract of the disclosure is required and must be presented on a separate sheet, apart from any other text.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 1-25 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

4. Claim 1, recites for "cutting and severing a semiconductor wafer...in a manner...as if the semiconductor wafer had not been cut" rendering the claim indefinite because it is unclear what the step recited covers. "Cutting and severing" as defined by the dictionary is in contradiction to "in a manner as if the wafer had not been cut". Merriam Webster dictionary defines "severing" as to put or keep apart: to remove (as a part) by or as if by cutting: to become separated, and it further defines "cutting" as to divide into parts with an edged tool: to separate or discharge from an organization: to single out and isolate: to change the direction of sharply: to divide into segments, therefore it is unclear whether the wafer is cut or not. Specification as originally filed describes "partial cutting", however this recitation (as part of original claim) is now amended to cutting and severing as if the workpiece had not been cut. Therefore a wafer, which has not been cut, may read over the step, as would a wafer that had been completely cut or a wafer that had been partially cut. The language as written does not clearly present the boundaries of the claim.

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Claim Rejections - 35 USC § 102

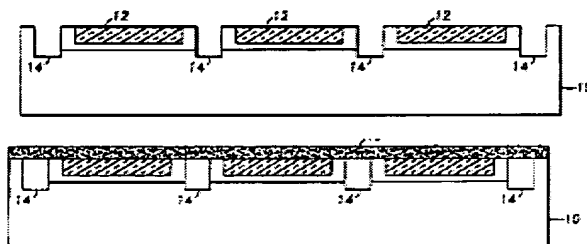
5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

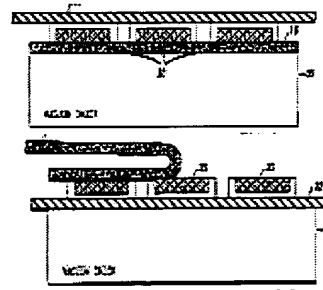
(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 1, 4, 5, 7, 17, and 20 (as best understood) are rejected under 35 U.S.C. 102(b) as being anticipated by Riding et al. (6,083,811).

Riding et al. meets all of the limitations of claims 1 and 17 (as best understood), i.e., at least partially cutting (14) a wafer (10); applying a tape (16) to the front side (8) and grinding the back side (6) (04:1-5)



Regarding claims 4, 5, 7, and 20, Riding et al. meets all of the limitations, i.e., mounting the grinded wafer and removing the protective tape; attaching adhesive (22) to the backside of the wafer; mounting the wafer before cutting it (03:44-50); wherein a vacuum transfer device may be used to move the wafer; and wherein the cut is sufficient to prevent cracking.

**Claim Rejections - 35 USC § 103**

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

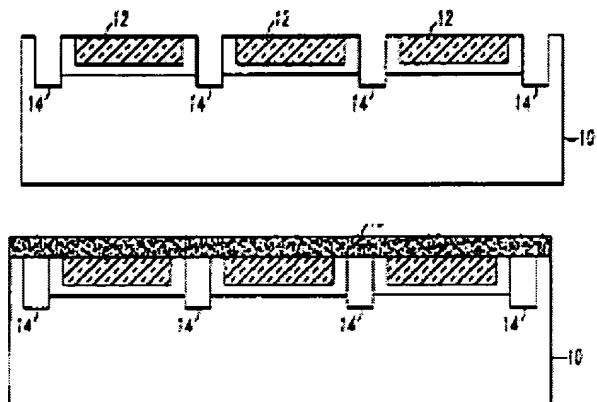
(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

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invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 2, 3, 18 and 19 (as best understood) are rejected under 35 U.S.C. 103(a) as being unpatentable over Riding et al. (6,083,811) in view of Applicant's Admitted Prior Art (AAPA).

Riding et al. meets all of the limitations of the claims (as best understood), i.e., except for disclosing laser scribing and dicing the wafer and for disclosing for the wafer to include low-K interlayer dielectric layer, but as indicated by Applicant, e.g., page 6, lines 3-7, it is known in the art for low-K wafer to first laser scribe the



wafer and then saw cut it. It would have been obvious to one of ordinary skill in the art, at the time the invention was made, to modify the above method by laser scribing and saw cutting in view of AAPA to prevent cracking for wafers having ILD layers.

9. Claims 6, 8, 11-16 and 21-25 (as best understood) are rejected under 35 U.S.C. 103(a) as being unpatentable over Riding et al. in view of Inuzuka (6,777,310).

Riding et al. as modified in view of AAPA, above meets all of the limitations of the above claims (as best understood), except for disclosing cutting the protective tape and the adhesive around the wafer. Cutting the tape to the shape of the wafer is known as evident by Inuzuka. It would have been obvious to one of ordinary skill in the art, at the time the invention was made, to modify the method of Riding et al. by cutting the tapes to the shape of the wafer as taught by Inuzuka for ease of manufacturing or cost reduction.

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The modified method (Riding in view of Inuzuka) meets all of the limitations of claims 8, 11-16 and 21-23 as indicated above, regarding claims 24 and 25, lacking limitations to define a wafer frame, chuck (30) as in Fig. 6 of Riding et al. is considered to meet the limitations, however, placing the grinded wafer on any frame to remove the protective tape would be obvious to one of ordinary skill in the art, depending on the operational parameters, e.g., on an assembly line, or the next step in the process.

Conclusion

10. THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Response to Arguments

11. Applicant's arguments filed March 14, 2006 have been fully considered but they are not persuasive. The argument that the amended claims are for grinding a semiconductor wafer is not persuasive, since firstly applicant claims a "method" and secondly the method as disclosed by Riding et al. meets the limitations as best understood as indicated above and in the previous Office Action. It is unclear how a "forming grooves" by Riding et al. as admitted by Applicant

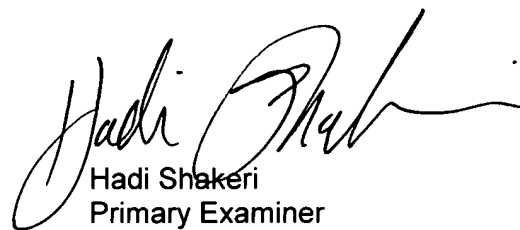
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does not meet the recitation of "cutting... as if uncut". Riding et al. partially cuts the wafer prior to grinding meeting the limitations of the independent claims as recited.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hadi Shakeri whose telephone number is (571) 272-4495. The examiner can normally be reached on Monday-Friday.

The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

A handwritten signature in black ink, appearing to read "Hadi Shakeri", with a stylized flourish extending to the right.

Hadi Shakeri
Primary Examiner
Art Unit 3723
May 17, 2006